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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,751	02/01/2006	Jungo Miyazaki	03500.103091.	7265

5514 7590 01/06/2009

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EXAMINER	
ZHU, JOHN X	
ART UNIT	PAPER NUMBER
2831	

MAIL DATE	DELIVERY MODE
01/06/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/566,751	MIYAZAKI ET AL.	
	Examiner	Art Unit	
	JOHN ZHU	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 November 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Response to communications filed on 9/17/08.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 13, 16, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lytton (5,384,715).

With respect to claims 13, 17, 19 and 20, Lytton discloses aspects of the claim including a system and method of evaluation comprising an oscillation unit (Fig. 2, element 204) for emitting an electromagnetic wave to strike the surface of a multilayer object (102-105), a reception unit/step (205) for receiving electromagnetic waves generated by the reflection, a processing unit (206) for counting the number of layers on basis of the reflected signals peaks (Column 3, lines 44-46) by first sampling the reflected wave pulses at a short time shorter than a pulse width of a temporal waveform (Column 9, lines 40-46, inherent by the Nyquist sampling theorem, sampling rate = 1/(2*frequency)), wherein the processing unit obtains the temporal waveform by using the output values (Column 9, lines 42-44, 'high resolution representation of the signal').

Lytton does not explicitly disclose the oscillating unit contains a component having a frequency in range from 30 GHz to 100 THz.

However, optimization of ranges by routine experimentation is not patently distinct when the general conditions of a claim are disclosed in the prior art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)".

Since the frequency of transmitted signal is based on what the device under test is (i.e. higher frequency for thinner materials, etc.), it would have been obvious to modify Lytton to include frequencies in the desired range for the purpose of penetrating and characterizing different desired materials.

With respect to claim 16, Lytton further discloses a propagation unit (Isolator 203) for propagating the signal emitted from the oscillating unit through a propagation route getting to the reception unit.

4. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lytton as applied to claim 13 above, and further in view of Wochnowski et al. (5,086,279).

With respect to claim 14, Lytton discloses all aspects of the claim except for second reception unit for receiving transmission through the layer, and second processing unit for detecting a delay time between the transmitted wave and the wave detected when the multilayer object does not exist (also read as reference wave), and counting the number of layers based on the detected delay time.

However, the delay time detection is the same principle Lytton uses in determining the number of layers and thickness of layers (reflected waves' peak values

and delay time between transmitted wave and wave when multilayer object does not exist (reference wave), column 3, lines 44-51). Also, the relationship between the thickness and number of layers is well known for homogenous layers. Wochnowski discloses second reception unit (28) that detects the signal of the wave transmitted through the layer (1).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made modify Lytton to include a second processing unit to use the detected delay time to achieve the predictable results of determining the thickness and number of layers of a multilayer object, and further obvious to one of ordinary skill in the art at the time the invention was made to incorporate the second reception unit as taught by Wochnowski into the device of Lytton for the purpose of achieving a more reliable and accurate system that takes into account both reflected and transmitted waves.

With respect to claim 15, Lytton does not explicitly disclose a dividing unit for dividing the electromagnetic wave pulse oscillated by the oscillation unit into a first wave for irradiating the multilayer object, and a second wave to be propagated to the reception unit.

Wochnowski discloses a dividing unit (in source 6) dividing the wave into a first wave (from 7) for irradiating the object, and a second wave (via line 12) to the reception unit (11).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lytton to include the dividing unit as taught by Wochnowski for the purpose of comparing the oscillation signals that are transmitted through a medium versus the reference oscillation signals (Column 5, lines 10-19).

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lytton (5,384,715) as applied to claim 13 above, and further in view of Madonna et al. (5,574,464).

With respect to claim 18, Lytton does not explicitly disclose the oscillation unit and the reception unit are photoconductive devices, but rather a radar system.

However, it is well known in the art of radar systems that many radar systems are photoconductive devices with a photoconductive switching circuit (See Madaonna, Column 2, lines 17-23).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lytton to include a photoconductive cell as taught by Madonna for the purpose of reliably detecting electrically reflected signals.

Response to Arguments

6. Applicant's arguments filed 9/17/08 have been fully considered but they are not persuasive.

Applicant's entire argument is reflected in the paragraph connecting pages 8 and 9 of the Remarks section. More specifically, applicant argues:

"*In contrast, in the present invention, a temporal waveform of electromagnetic wave pulses is obtained by temporally sampling an output value of the reflected electromagnetic wave pulse at every split time...*"

The applicant has failed to explain how the temporal sampling in the instant application is different than the Nyquist sampling theorem of the Lytton reference. The examiner maintains that the sampling of the reflected waveform and analyzing the peaks to determine layers in Lytton is identical to the instant application.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN ZHU whose telephone number is (571)272-5920. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Diego Gutierrez/
Supervisory Patent Examiner, Art Unit 2831

John Zhu
Examiner
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